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PSYCHOLOGICAL ASPECTS OF ARTHRITIS

A thesis presented in partial fulfillment of  
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This thesis is dedicated to my parents

Rev. LLOYD and Mary Crawford

## Abstract

Research was conducted with two groups of arthritic patients: patients with Rheumatoid Arthritis (RA) and patients with Spondyloarthritis (SA). A chronic pain, non-inflammatory disease group of patients with Osteoarthritis, and a pain-free sample of normal people were used as controls. All groups were tested with a test battery, the items of which were analyzed to identify items indicating psychopathology but which were also related to disease process. The test battery comprised questions requesting demographic information, the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), the Buss-Durkee Hostility Inventory (BDKH), Osgood's Self Concept Scale and the McGill Pain Questionnaire (MPQ). Hypotheses investigated were that: anxiety, depression and hostility were all elevated in arthritics compared with patients with other chronic painful disorders and pain-free controls; that anxiety, depression and hostility were all elevated in people with classical RA compared with patients with SA; that current level of pain enhances the levels of anxiety, depression and hostility in all subjects; that self concept as an indicator of coping skills moderates the levels of anxiety, depression and hostility. An analysis of variance procedure was used to find significant differences between groups. A scheffe test was used as a conservative procedure. Regression analyses were used to investigate the hypotheses that pain and self concept moderated anxiety, depression and hostility. The hypotheses were partially confirmed by the results. Patients with SA were significantly more anxious and all patient groups were significantly more depressed when compared with controls, however, in general patients were no more hostile when compared with pain-free controls. Pain enhanced depression and guilt but not anxiety or any of the other hostility variables. Self concept moderated anxiety, depression and hostility. Questions in tests were disease-related and resulted in the over-diagnosis of depression. The need for longitudinal research and research into coping skills was discussed.

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The term arthritis refers to a collection of over 100 conditions which may or may not be inflammatory (Achterberg-Lawlis, 1982). The more usual forms are rheumatoid arthritis (RA), osteoarthritis (OA), ankylosing spondylitis, systemic lupus erythematosus (SLE), and gout.

Rheumatoid arthritis is described as a chronic syndrome characterized by nonspecific, usually symmetric inflammation of the peripheral joints, potentially resulting in progressive destruction of articular and periarticular structures. It is an autoimmune disorder and can be subclassified into categories of "possible", "probable", "definite" and "classic" RA (The Merck Manual, 1982). Some studies have used the presence or absence of rheumatoid factor to differentiate patients with RA (e.g. Solomon and Moos, 1964; Vollhardt, Ackerman, Grayzel and Barland, 1982). Rheumatoid factor is measured by the Fraction II hemagglutination test which measures rheumatoid factor by the agglutination of washed sheep red cells coated with Fraction II of human plasma.

Osteoarthritis is degenerative or trauma related. Many types of mechanical stresses can damage articular cartilage. Amongst the physical factors are: a single impact, gross anatomic damage, subtle mechanical derangement, joint hypermobility, multiple repeated impacts and prolonged or repeated heavy overuse of any joint or group of joints (Peyron, 1979). Of all factors studied, age can be most closely and consistently correlated with the presence of OA. The mechanism by which aging influences the onset of OA is poorly understood at present.



The prevalence of OA as assayed by x-rays of hands and feet, tends to be slightly more marked in men under 45; to be roughly equally distributed between the sexes around 45 - 55, and to show a marked predilection for women over 55. Multiple joint involvement is more frequent in females than in males.

Systemic lupus erythematosus, like RA, is an autoimmune disorder, whereas gout and ankylosing spondylitis have a strong genetic component. Ankylosing spondylitis is described as a chronic progressive form of arthritis distinguished by inflammation and eventual ankylosis of a number of joints, primarily involving the spine and paraspinal structures.

Fibrositis, muscular rheumatism and psychogenic rheumatism are other conditions frequently seen. These designations are given to the the vague unexplained aches and pains that characterize patients who are difficult to treat along established lines of medicine (Achterberg-Lawlis, 1982). Pain in and around the joints is the common denominator among these conditions which may differ otherwise in symptomatology and etiology.

At the time of King's review (King, 1955) the literature indicated that we did not have a clear picture of the role that psychological and social factors played in the predisposition towards arthritis, its onset or its exacerbation. However it was clear that such factors did have a role in some cases and that the importance of this role varied between individuals.

The influence of psychological factors as causative or reactive agents in individuals with RA has been investigated from various viewpoints. A number of psychological factors have been found to be associated with arthritic conditions including anxiety and depression (King, 1955; Polley, Swenson and Steinhilber, 1970; Mindham, Bagshaw, James and Swannell, 1981) and anger (Moos, 1964).

It has been suggested that emotional disturbance may vary according to various parameters of arthritic conditions, such as pain and type of arthritis, and according to either pre-morbid coping skills or to post-morbid development of coping skills. Meyerowitz (1966) suggested a meaningful grouping of psychological hypotheses relevant to rheumatoid disease: a specificity hypothesis which assumes identifiable psychological characteristics have been present pre-morbidly; a disease-onset hypothesis which implies that there is a significant association between certain types of life experiences and/or psychological states and the onset of rheumatoid disease; and a disease course hypothesis which suggests that identifiable psychological responses observed in persons with RA influence the course of illness.

Moos and Solomon (1964) speculated that emotional disturbance in conjunction with rheumatoid factor may lead to rheumatoid disease. They found evidence that patients with rapidly progressive disease were experiencing an inability to use previously successful coping mechanisms; were more anxious and depressed, and were not as well able to utilize the adaptive defences of compliance, compulsivity, and suppression of anger, as were those with slowly progressing disease.

Patients with rapidly progressive disease appeared to make a strong but relatively unsuccessful attempt to keep their impulses under control.

Of the psychological variables related to RA, aggression seems one of the most fruitful areas for further exploration. Both overt and covert expression of aggression are relevant and also how environmental cues leading to aggressive behaviour are processed within the nervous system; the cognitive factors involved, and the relation between aggression and anxiety (Crown, Crown and Fleming, 1975).

It may be that people with RA are characterized by increased variability in their behaviour. They may appear not to differ from control subjects in the amount of anger they express, however they may tend to suppress, control or inhibit anger, or alternatively tend to break out into almost uncontrollable rages. If these two reactions were averaged, one would find no difference in expression of anger between an arthritic and a control group; however there would be differences between the two groups in the variability of their behaviour (e.g. Cormier, Wittkower, Marcotte and Forget, 1957; Mueller, Lefkovits, Bryant and Marshall, 1961 cited in Moos, 1964). By averaging data across subjects, these studies may have consistently measured an inappropriate dimension of behaviour.

It was also found that women with RA have less even control over different kinds of aggressive impulses than do healthy women, that is, some impulses were well controlled or blocked while other impulses appeared to escape control. Amongst men, the association with RA was in the opposite direction but was not significant. Men with RA

compared with healthy men, reported less frequent impulses to general overt aggression, less wife-directed aggression, stronger guilt about such aggression, and their anger episodes were of longer duration (Kasl and Cobb, 1969).

In looking at pain-mood patterns in patients with RA, Moldofsky and Chester (1970) found two patterns: a synchronous state, characterized by mood changes within an anxiety or hostility spectrum, either closely preceding or concomitant with fluctuations in joint tenderness; and a paradoxical state, characterized by an inverse relationship between intensity of joint tenderness and a sense of hopelessness.

Using Cattell's Personality Form (16PF), Robinson, Kirk and Frye (1971) found high agreement of traits of "new" and "old" RA groups. "New" RA patients were those tested within 10 months of their first medical diagnosis, while "old" RA patients had been medically diagnosed for more than three years. An independent sample of eight new RA patients was tested with the 16PF and showed a significant profile correlation with the new RA patients previously tested and a significant profile correlation with the original sample of old RA patients. Two possible explanations are: that there is some RA personality "type" which predates the disease and plays some role in the onset and progression of the disease process, and, that the pain and crippling associated with RA forces patients to a common type regardless of their previous makeup. Unfortunately the relatively small number of patients within each diagnostic group makes any generalization rather tenuous.

In studying patients with RA using Cattell's 16PF, Moldofsky and Rothman (1971) found a significant relationship between patient's personalities and whether or not these patients had been treated with some type of oral corticosteroid. In comparison to those who had never received steroids, those who had received the drug were found to be characteristically more depressed and taciturn, complaintive and demanding, and dependent and easily upset. It could be that the prescription of oral corticosteroids is contingent on the psychological rather than the rheumatological needs of the rheumatoid patient. This does not satisfactorily answer the question of whether patients with RA experience psychological difficulties preceding disease onset, or alternatively suffer from psychological problems as a result of their disease.

A major problem in personality studies of patients in diagnostic categories is the implicit assumption that patients with a particular disease represent a homogenous sample with respect to the importance of psychological variables for that disease. Subject populations of arthritic patients in many studies reviewed were extremely diverse in age, onset and duration of symptoms, degree of disability, status as inpatients or outpatients, and type of investigator contact with subjects (e.g. clients in psychotherapy, single interview, or testing situation). In other studies there was a lack of information about patient characteristics such as intelligence and amount of medication utilized. Different findings among studies may have been merely a result of differences in particular patient characteristics. The results of various studies may have differed also, not because the arthritics were different, but because the baseline (control) against

which they were compared were different. An improvement in recent investigations has resulted from selecting subjects on the basis of the Arthritis Foundation's (1973) criteria for establishing a diagnosis of definite rheumatoid arthritis (Hoffman, 1974).

Many early studies were inadequate in terms of control comparisons. Some had no controls (Cobb 1959, 1962; Wolpaw 1960). Others lacked adequate comparisons. Mueller and Lefkovits (1956) tested a male RA group for IQ and administered the Rosenzweig Picture Frustration test and the Rorschach; while a male neurotic group were tested similarly but without the Rosenzweig test. Moos and Solomon (1964) used a sample of females from heterogeneous life situations to compare Minnesota Multiphasic Personality Inventory (MMPI) response patterns of arthritics, with those of their healthy female relatives.

Differences in research findings, Hoffman felt, could be attributed to the inappropriateness of some test items to individuals with incomparable life situations which would violate the assumption underlying the use of standardized tests with norms. That is the assumption that the life situation of tested individuals is similar enough to that of comparison groups that similar interpretations may be given to identical item responses. An example of this is cited by Hoffman where Moos and Solomon (1964) averaged and compared Cohen's (1949) and Wiener's (1956) findings with their own results which included data from both male and female subjects with RA.

A lack of psychometric sophistication has been a problem in some studies. Some studies failed to use objective and standardized tests.

Wolff (1971) criticized Cobb, Schull, Harburg and Kasl (1969) in using an interview measure in order to classify respondents according to whether they had, or did not have RA. A number of social-psychological factors such as parental status stress, and arbitrary discipline, were revealed as contributing to the disease. Wolff felt it was regrettable that the tests used were retrospective and not longitudinal or predictive. Little information was yielded on the primary or secondary nature of psychosocial variables.

The presence of physical complaints associated with disease symptoms was shown to have influenced subjects' responses and subsequent MMPI profiles in a study by Nalven and O'Brien (1964). Also used in research was the Beck Depression Inventory (Zaphiropoulos and Burry, 1974). This is another inventory with a number of items which might be responded to positively as a result of arthritic disease processes, but which would indicate depression when the test is scored. Kathol and Petty (1981) state that it is difficult to be certain that the diagnosis of major depression in medically ill patients is valid. Sleep disturbance, somatic preoccupation, retardation, indecisiveness, sexual indifference, appetite disturbance with or without weight loss, and fatigue occur with significant frequency in the non-depressed medically ill population. Furthermore, severe medical disease leads to a greater frequency of these somatic complaints.

Where objective tests have been used, there have sometimes been limitations. Hoffman (1974) points out that any one individual can manifest a behavioural state, for example dependency, at some times or in some situations, and express another state, for example



independence, at other times or in other situations. The consistency of personality traits as measured by the MMPI reflects the quantitative magnitude of traits and does not assess the situational variance. Furthermore, Crown (1978) states that psychosomatic medicine has passed through and rid itself of oversimple notions such as, that persons with a particular psychological makeup or with specific conflicts and difficulties are predisposed to develop specific diseases.

There has been an overemphasis of negative personality traits in research on arthritis, obscuring positive adaptations people have made to the disease. Hoffman (1974) feels that an important area for investigation would be predictive studies that could differentiate individuals with early rheumatoid disease who may require psychological resources in order to contain successfully the disabling effects of the disease, e.g. investigations that would identify individuals who may manifest a succumbing versus a coping response to the disease process and course.

A number of studies, e.g. Solomon and Moos (1965); Rimon (1973); Crown and Crown (1973) and Vollhardt et. al. (1982), have separated patients into groups using the presence or absence of rheumatoid factor (RF) as a criterion. This is inappropriate as:

- (i) This approach could find differences between groups which reflected differences in severity of disease;
- (ii) It is difficult to distinguish seronegative RA from seronegative polyarthritis (polyarthritis being an inflammatory arthritis of more than one joint as defined by the New York Criteria of disease);



(iii) The RF titer can be influenced by treatment or spontaneous improvement and often falls as inflammatory joint activity decreases. Patients may therefore show different titers at different times. Also RF are not specific for RA and are found in many diseases, and also in normals. (Wright and Moll, 1976).

The weight of existing evidence from a review of the literature (Wolff, 1971) favoured the view that most, if not all of the common personality variables observed in individuals with arthritis are associated with the physical condition and symptoms, and are thus most likely secondary to the disease process. Probably biologic and psychological factors interact to influence the onset and course of rheumatoid disease (Robinson, 1972).

Pain is the common denominator in arthritic conditions. The psychological factors of anxiety, depression and hostility have been reported to have positive and independent relationships to pain and life-stress events (Leavitt, Garron and Bieliauskas, 1979). Studies of pain patients revealed that those with acute pain tended to show normal personality profiles, but the degree of pain experienced was related to the degree of anxiety present. Most chronic pain patients, like those with psychogenic pain, showed somatic preoccupations and reactive depression (Sternbach, 1975). It was also concluded that selected psychological states and traits are significantly correlated with the perception of pain (Morgan and Horstman, 1978).

As Beecher (1959) has pointed out, physiological pain sensations

are always accompanied by the apprehension of future pain, which may be conceived as a conditioned fear (anxiety) response which summates with the physiological pain (cited in Lynn and Eysenck, 1961). Others have found that degree of pain is related to the degree of anxiety present (Sternbach, 1975). Sternbach found lower pain thresholds for women and older persons and that pain tolerance is associated with the psychological state of the individual. The stoical patient usually has a pain threshold and maximum pain tolerance level quite similar to the patient who is "exaggerating" his pain. Evans (1973) suggested two types of anxiety. Some people chronically experience relatively high levels of anxiety as a personality trait or stable characteristic of their life-style. However there are specific occasions and stresses to which even the relatively non-anxious person will temporarily feel highly anxious. Evans found that increasing levels of situational anxiety correlated only with increases in pain threshold, but not with pain tolerance, whereas chronic or trait anxiety was related to improvements in pain tolerance rather than pain threshold. Some researchers concluded that pain may frequently be substituted for feelings of anxiety or depression as the experience of physical pain may be less distressing than other feelings. Also as pain persists over time, anxiety appears to give way to depression (Pilling, Brannick and Swenson, 1967).

Patients with chronic pain are typically described as depressed whereas those with acute pain are typically described as anxious (Ghia, 1981). Sternbach (1974) and Pilowsky (1968) have suggested that pain patients characterized by depression or anxiety tend to exhibit more favourable response to treatment (cited in Snyder and Power, 1981).

It was suggested that chronic pain might be a central neuropsychological disorder with many similarities to depression. Swanson (1984) suggested it is more closely related to depression than anxiety, but it has sufficient characteristics of its own to distinguish it clearly from both of these other pathologic emotions. Chronic pain is therefore, in the same category as the "emotions" of anxiety and depression but they are separate phenomena that interface closely with each other.

The increased incidence of depressive reaction in a rheumatoid group of patients as compared to those with other painful locomotor disorders might be attributed to the systemic nature of rheumatoid disease, the greater persistence of pain and disability, or constant uncertainty about what the future might hold (Zaphiropoulos and Burry, 1974).

Following Engel's (1959) work with pain patients, Blumer and Heilbronn (1982) consider that recent research has led to the identification of a well defined psychobiological disorder with characteristic clinical, psychodynamic, biographic and genetic features. This syndrome is termed the pain-prone disorder and is viewed as a variant of depressive disease. In comparing patients with pain-prone disorder and patients with RA, Blumer and Heilbronn found significant differences in the duration, onset and continuity of pain. Patients with RA suffered pain twice as long with nontraumatic, gradual onset compared to the pain-prone group. Depressive traits were significantly more prevalent among the pain-prone patients and more often admitted. Impaired sleep and anhedonia (inability to engage in

social life and hobbies and to enjoy leisure time and sexual intercourse) were strikingly prevalent among the pain-prone patients.

Confirmation that there was a relationship between "persistent" pain and low self-esteem was found in a study by Elton, Stanley and Burrows (1978). They felt that treatment directed at improvement of self-esteem may produce concomitant improvement in patient's pain experience. Patients with higher self-esteem may have a greater chance to respond favourably to conventional methods of treatment of chronic pain within the framework of the usual medical approaches. Patients with low self-esteem may not benefit from such treatments, unless their psychological problems are a target for treatment as well.

Armentrout (1979) compared medical patients, chronic low back pain patients and chronic head pain patients. His data indicated that the experience of pain over a protracted period was strongly related to an individual's negative self-perception. Changes in physical activities, family patterns and occupation, all probably contributed to this lowering of the self-concept. Conversely positive self-concept in patients with chronic pain or RA may indicate ability to handle disease.

There are a range of psychological variables such as anxiety, depression and hostility that have been associated with arthritic conditions. The evidence tentatively indicates that they may be considered of peripheral or primary importance, and may contribute to disease onset. Unfortunately there is no way of conveniently determining causation without longitudinal studies whether arthritis

causes certain personality variables to appear or personality variables cause arthritis.

Early studies lacked adequate control groups for comparison and other studies lacked psychometric sophistication. Some tests measured physical complaints while purporting to measure psychological variables. Others failed to account for situational variances by measuring traits and not states, and most failed to account for the possible involvement of pain and the development of pre-morbid or post-morbid development of coping skills in amount of emotional disturbance experienced.

The proposed study attempts to redress some of the methodological inadequacies of many previous studies with improved psychometric sophistication, and in so doing attempts to clarify the relationships between various personality variables previously observed and more clearly delineated arthritic conditions, using a chronic pain, non-inflammatory disease control group (OA), and a pain-free control group. Two groups of arthritic patients studied comprised of patients with classical RA and patients with Spondyloarthritis (SA), as defined by Wright and Moll (1976). All groups were tested with a test battery, the items of which were analyzed to identify items indicating psychopathology but which were also related to disease process.

The hypotheses to be investigated were:

- 1) That anxiety, depression and hostility are all elevated in arthritics compared with patients with other chronic painful disorders and pain-free controls.

- 2) That anxiety, depression and hostility are all elevated in people with classical RA compared with patients with the Spondyloarthropathies.
- 3) That current level of pain enhances the levels of anxiety, depression and hostility in all subjects.
- 4) That self-concept as an indicator of coping skills moderates the levels of anxiety, depression and hostility.